



BOTSWANA  
EXAMINATIONS  
COUNCIL

JUNIOR CERTIFICATE EXAMINATION

# ASSESSMENT SYLLABUS

AGRICULTURE  
CODE 016



2013

016  
CODE

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## FOREWORD

The Botswana Examinations Council is pleased to release the assessment syllabus for the revised Junior Secondary Education curriculum implemented in January 2010.

The purpose of this assessment syllabus is to guide schools, teachers and other educational institutions on what will be assessed in the subject area and how the assessment will be carried out for certification of students completing the Junior Secondary Education.

The curriculum at junior secondary level, puts emphasis on understanding and application of concepts; development of high order thinking skills (HOTS) such as inquiry, decision making, reasoning, creative, analytical, problem solving and process skills. It also calls for the acquisition of hands on experience that should increase the participation and performance of all groups e.g. groups of different abilities, learners with special needs, girls and boys.

All these skills entail more practical and challenging content and tasks that require higher levels of engagement of a learner's cognitive ability. The assessment syllabus has been designed to allow these higher order thinking skills to be assessed. It assesses what candidates know, understand and can do, enabling them to demonstrate their full potential.

The assessment syllabus is intended to promote a variety of styles of teaching, learning and assessment to enable candidates to progress to higher levels of learning. Therefore, teachers must be proficient in planning and directing a variety of learning activities. They should be conscious of the need for the students to be accountable and responsible for their own learning to some extent. They must also take into account the widening different levels of achievement which they aspire to. This implies active participation by both students and teachers, the creation of rich and diverse learning environments and the use of relevant assessment procedures to monitor the development of each learner.

It is important then that we value the student's own experiences, build upon what they know and reward them for positive achievement. This assessment syllabus is the outcome of a great deal of professional consultation and collaboration. On behalf of the Botswana Examinations Council, I wish to express my sincere gratitude to all those who contributed to the development and production of this assessment syllabus.



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**Executive Secretary**

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## 1. Introduction

As part of the Botswana Junior Secondary Education Programme, this Agriculture syllabus is designed to provide a framework for the assessment of candidates who have completed the three-year course based on the revised Junior Secondary Agriculture teaching syllabus.

The Junior Secondary Education Agriculture Assessment Syllabus aims to afford the candidate an opportunity to fully demonstrate their potential and exhibit the knowledge and skills they possess through a variety of assessment modes. The syllabus also aims at providing information on what will be assessed and how it will be assessed with the intention of achieving comparable standards from year to year.

Candidates will be assessed on a scale of A – E. Candidates who fail to meet the minimum requirement will be awarded a U.

This syllabus should be read in conjunction with:

- (a) the Junior Secondary School Agriculture Teaching syllabus;
- (b) the specimen question papers and marking schemes.

This syllabus is available for private candidates.

The outcome of instruction in the content prescribed by the Agriculture teaching syllabus will be assessed through a multiple-choice paper, a written paper and centre-based assessment for school candidates and a multiple-choice paper, two written papers for private candidates.

## 2. General Aims of Assessment

The syllabus embraces the subject aims defined in the Agriculture teaching syllabus.

The assessment syllabus has the following additional aims:

- To ensure proper assessment of all the important skills in the curriculum
- To enable both teaching and assessment to cater for all ability levels
- To provide an efficient evaluative mechanism of the curriculum
- To encourage an investigative approach to learning
- To provide internationally recognised standards
- To enable the students to realise their full potential

## 3. Assessment Objectives

For purposes of assessment, the behavioural outcomes of instruction in the prescribed content have been classified into three broad skill areas known as assessment objectives. Brief descriptions of the assessment objectives are given below.

### **Assessment Objective 1: Knowledge with Understanding**

**Candidates should be able to demonstrate knowledge with understanding in relation to;**

- 1.1 correct use of terms, symbols, quantities and units of measurements;
- 1.2 correct reference to facts, concepts, laws and principles;
- 1.3 safe Agricultural practices that prepare students for a productive life.

### **Assessment Objective 2: Handling Information, Application and Problem Solving**

**Candidates should be able to use oral, written, symbolic, graphical, tabular, diagrammatic and numerical presentations to;**

- 2.1 locate, select, organize and present information from a variety of sources;
- 2.2 translate information from one form to another;
- 2.3 to identify patterns, report trends, draw inferences, make predictions and propose hypothesis;
- 2.4 present reasoned explanations for phenomenal patterns and relationships;
- 2.5 solve problems of a quantitative and qualitative nature.

### **Assessment Objective 3: Practical Skills and Techniques**

**Candidates should be able to;**

- 3.1 choose and use suitable techniques, equipment and materials safely and correctly;
- 3.2 record observations, measurements and estimates;
- 3.3 grow and manage a crop;

3.4 market crops and their products.

## 4. Scheme of Assessment

The JCE Agriculture syllabus will be assessed through two options, Option 1 and Option 2. Option 1 will be for school candidates who will sit a multiple-choice paper, a written paper and centre-based assessment; Papers 1, 2 and 3. Option 2 will be for private candidates who will sit a multiple-choice paper and two written papers; Papers 1, 2 and 4.

	Paper 1	Multiple-Choice	
<b>Time</b>	<b>1 hour</b>		<b>Marks 40</b>
Weighting	<b>35%</b>		

This will be a 40 item multiple-choice paper assessing knowledge, understanding and application of Agriculture concepts including handling information and problem solving skills. Each item will have four options.

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Paper 2		Structured Items	
<b>Time</b>	<b>1 hour 15 minutes</b>	<b>Marks</b>	<b>60</b>
<b>Weighting</b>	<b>40%</b>		

This will be a written paper assessing knowledge, understanding and application of Agriculture concepts, including handling information and problem solving skills. Questions will address all ability levels. There will be three sections in the paper, that is, Sections **A**, **B** and **C**.

**Section A:** Consists of structured questions covering all the compulsory objectives in the teaching syllabus. Candidates will answer **all** questions. This section is worth **40 marks**.

**Section B:** Consists of structured questions on sheep and goat production. Candidates will choose only **one** question. This section is worth **10 marks**.

**Section C:** Consists of structured questions on pig production, rabbit production, bee keeping and fish production. Candidates will choose only **one** question. This section is worth **10 marks**.

## Centre-Based Assessment

<b>Time</b>	<b>January to May in Form 3</b>	<b>Marks</b>	<b>50</b>
<b>Weighting</b>	<b>25%</b>		

The purpose of this paper is to afford the candidates a wider opportunity to demonstrate their practical skills and techniques in Agriculture including application of knowledge and concepts. The assessment will be conducted in the final year of the course. Candidates are expected to present two vegetable crops from different classes and a card of records for assessment. Crops presented should have reached maturity at the time of moderation dates. Candidates will be assessed by teachers during the course of study.

Marks awarded by the centre will be moderated by BEC. The moderation will be carried out between May and June.

*Note: See Appendix Guide for marking card of records, Appendix B for marking criteria for plot stand.*

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## Paper 4

## Alternative to Centre-Based Assessment

**Time**            **1 hour**

**Marks**    **40**

**Weighting**    **25%**

This will be a written paper designed mainly to assess candidates on their application of practical skills and techniques in vegetable production, including handling information and problem solving skills. The paper is intended for candidates who have acquired the practical skills but have not been able to carry out or complete the expected coursework activities. The paper will consist of structured questions in vegetable production addressing all ability levels.

## 5. Assessment Grid

The grid below shows the assessment objectives that will be mainly assessed in each paper.

Papers	Assessment Objectives		
	AO 1	AO 2	AO 3
Paper 1	√	√	
Paper 2	√	√	
Paper 3		√	√
Paper 4		√	√

## 6. Grade Descriptors

The descriptions below provide a general indication of the skill acquisition expected of the candidates for the award of key grades A, C and E.

### Grade A

**Candidates should be able to;**

- use scientific vocabulary;
- recall a wide range of agricultural concepts, facts, principles and theories;
- relate a wide range of scientific concepts to agricultural principles and theories and recognise scientific relationships;
- apply scientific knowledge and understanding, identify patterns, report trends from given information and draw appropriate conclusions and give recommendations to new situations;
- translate information from one form to another: process information from graphs, tables and charts; represent information in the form of graphs, tables and charts with ease;
- use appropriate equipment, techniques and chemicals safely and correctly; follow given instructions to perform an experiment involving over 80% of the required steps;
- make accurate observations, decide the level of precision needed in measurements and record experimental data; process data, make conclusions and generalisations where appropriate with ease and identify anomalous observations.

## Grade C

### Candidates should be able to;

- use scientific vocabulary;
- recall a wide range of agricultural concepts, facts, principles and theories with some assistance;
- relate scientific concepts to agricultural principles and theories and recognise scientific relationships with some assistance;
- apply scientific knowledge and understanding, identify patterns, report trends from given information, draw conclusions and give recommendations to simple situations;
- translate information from one form to another: process information from graphs, tables and charts; represent information in the form of graphs, tables and charts with some assistance;
- use appropriate apparatus, and techniques safely and correctly, follow given instructions to perform and experiment involving 60 to 50 % of the required steps;
- make accurate observations, measurements and record experimental data; process data, make conclusions and generalizations where appropriate with some assistance;
- recognise when it is necessary to repeat observations and measurements.

## Grade E

### Candidates should be able to;

- recall basic agricultural concepts, principles and theories;
- basic agricultural concepts to scientific principles and theories and recognize scientific relationships;
- apply basic scientific knowledge and understanding, identify patterns, report trends from given information and draw conclusions and give recommendations to familiar situations;
- translate information from one form to another;
- process information from graphs, tables and charts;
- represent information in the form of graphs, tables and charts with assistance all the way;
- use familiar apparatus and simple techniques safely and correctly, follow given instructions to perform an experiment involving one step;
- make simple observations, measurements and record experimental data, process data, make conclusions and generalisations where appropriate.

## 7. Inclusive Assessment

BEC intends to ensure all assessment offered is inclusive of all candidates regardless of their ability or challenges. This will afford all candidates the opportunity to display what they know without fear or prejudice. The assessment will therefore ensure that in the written papers items cater for all ability levels. Special needs candidates will be catered for through modification of assessments to suit visually challenged candidates, learners with hearing impairment as well as learners with learning disabilities. Candidates will also be accommodated as much as possible to gain access into the practically oriented syllabuses.

Centres are however requested to;

- inform BEC of any candidates who need special arrangements by March every year;
- ensure familiarity with the BEC special arrangements manual;
- make the necessary accommodations for learners with disabilities during the teaching and learning;
- modify learners assessments according to their various needs during the teaching and learning.

This will ensure that the special arrangements carried out by BEC do not come as a shock to candidates during examination time.

## 8. Coursework

Centres are expected to mark candidates' work according to the marking criteria provided by BEC (*see Appendices A and B*). The marking criteria is intended to ensure standardised marking at a national level. It is essential that the marking criteria is adhered to in order to facilitate the moderation of centre scores by BEC. Where there are indications that the marking criteria has not been adhered to, centres will be required to re-mark. BEC is responsible for the training of teachers on the application of the marking criteria.

Where there is more than one teacher in a centre, teachers are expected to standardise their marking before marking their individual students to ensure that all students are marked to a common standard. It is essential that the marking from different teaching groups in a centre is standardised for the whole centre entry. The marking of the plot stands should be conducted three days prior to the scheduled moderation date. The centre marks will then be externally moderated by BEC.

Centres are required to ensure that the work presented is the candidate's own work and that the work is only carried out within the school premises.

### **Moderation of Coursework**

BEC will send individual mark sheets and summary mark sheets to centres around March every year. Centres are expected to transfer candidate's standardised marks into the individual mark sheets and the summary mark sheets by the end of April in preparation for the moderation in May. The completed and signed mark sheets should be submitted to the Head of Centre two days before the moderation date. All the mark sheets should then be submitted to BEC through the external moderator.

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Before conducting the moderation, the moderator will ensure that:

- the marking criteria have been applied;
- the marking is accurate and consistent;
- the marking has been standardised if more than one marker has been used.

## 9. Appendix A: Guide for Marking Card of Records

Card Presentation	Marks
Correct entry/record of work done. <ul style="list-style-type: none"> <li>Description of activities and tools used</li> </ul>	2
Correct reasons for activities carried out e.g. Reasons for watering before and after planting are different	2
Timely recording of important activities <ul style="list-style-type: none"> <li>Dates given for activities should be realistic e.g. the interval between planting and emergence should be reasonable</li> </ul>	2
Logical presentation of work done <ul style="list-style-type: none"> <li>Are the activities correctly following one another</li> </ul>	2
Neatness of work recorded <ul style="list-style-type: none"> <li>Amount of cancellation and soiling</li> </ul>	2
<b>Total</b>	<b>10</b>

### 10. Appendix B: Marking Criteria for Plot Stand

The table below shows the marking criteria to be used for each vegetable plot.

CRITERIA		Marks	Marks	Total Marks
<b>Layout of plot</b>	<ul style="list-style-type: none"> <li>• Ridges-ridges constructed in a way that does not allow water to run out of the plot - plot raised, flat or sunken</li> </ul>	1	3	3
	<ul style="list-style-type: none"> <li>• Levelling – sloping or flat plot</li> </ul>	1		
	<ul style="list-style-type: none"> <li>• Size/measurement – plot size 2m x 1m</li> </ul>	1		
<b>Cleanliness</b>	<ul style="list-style-type: none"> <li>• plot free from weeds and any other material that can hamper plant growth</li> </ul>	2	3	3
	<ul style="list-style-type: none"> <li>• Cultivation – well cultivated plot</li> </ul>	1		
<b>Population</b>	<ul style="list-style-type: none"> <li>• Spacing               <ul style="list-style-type: none"> <li>• correct inter row spacing used</li> <li>• correct intra row spacing used</li> </ul> </li> </ul>	1	4	4
		1		
	<ul style="list-style-type: none"> <li>• Correct number – correct number of plants per station</li> </ul>	1		
	<ul style="list-style-type: none"> <li>• Thinning – correct thinning done /one plant per station</li> </ul>	1		
	<ul style="list-style-type: none"> <li>• Colour – appropriate colour to variety being grown</li> </ul>	1	1	
	<ul style="list-style-type: none"> <li>• Freshness – plant not wilting/drying/damaged/yellowing</li> </ul>	2	2	
	<ul style="list-style-type: none"> <li>• Pruning – yellowing/overgrown/diseased/damaged/ excess leaves removed for leafy crops</li> </ul>	2	2	
	<b>OR</b> Trimming for onions	2		
	<b>OR</b> <i>For crops that need pruning and other specific management practices</i>	pruning		
management practice		1		



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<b>Condition of crop</b>					<b>10</b>	
	<b>OR</b>		<b>2</b>			
	Supporting - For crops that need supporting only but no pruning					
	<ul style="list-style-type: none"> <li>• Maturity - crops reached maturity stage</li> </ul>	<ul style="list-style-type: none"> <li>• Flowering for peas, tomatoes, green pepper</li> </ul>	<b>2</b>	<b>2</b>		
		<b>OR</b>				<b>2</b>
		<ul style="list-style-type: none"> <li>• Leaf size for leafy crops</li> </ul>				<b>2</b>
	<ul style="list-style-type: none"> <li>• Marketability - crop reached marketing stage in good condition</li> </ul>	<ul style="list-style-type: none"> <li>• Appearance of bulbs or tuber in bulb crops</li> </ul>		<b>2</b>		
<ul style="list-style-type: none"> <li>• Readiness for harvesting</li> </ul>		<b>1</b>	<b>2</b>			
<ul style="list-style-type: none"> <li>• Attractive to buyers</li> </ul>		<b>1</b>	<b>1</b>			
<ul style="list-style-type: none"> <li>• Uniformity – crops in the plot at the same growing stage</li> </ul>		<b>1</b>	<b>1</b>			
<b>Total</b>					<b>20</b>	

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